

ABSTRACT

The invention enables a communication device to efficiently communicate large circular signal constellations by embedding a square signal constellation in each of the circular signal constellation points. By embedding a square signal constellation in the error free slicing region associated with each circular constellation signal point, the beneficial shape of the circular constellation is retained while significantly increasing the amount of information that can be transmitted in each constellation. The invention allows the communication of high bit-per-symbol signal constellations (on the order of 15 or more bits-per-symbol) without the added cost of external memory for large look-up tables or the cost and power consumption of line drivers required to communicate high peak factor square signal constellations.